





charge in cfs			Total Recoverable Aluminum Coefficients				
	Intercept	coefficient			B	Intercept	
Runoff			Low Flow November-March		A72	1.000	496.92654
M34	-2.771	0.394	-2.28954	<u>0.38718</u>	M34	0.080	299.49322
CC48	1.752	0.130	6.77165	<u>0.10539</u>	CC48	1.000	2153.80184
A68	-11.131	0.498	-3.62869	<u>0.45153</u>	A68	0.001	140.21455

Discharge Relationships among the three gages

MONTH	J	F	M	A	M	J	J
Intercept	1	1	1	1	1	1	1
A 72	64	63	77	155	682	1196	624
M34	22	22	28	58	266	468	243
CC48	14	13	15	22	91	158	83
A68	25	25	31	66	329	585	300
Ground water	3	3	3	9	-3	-14	-2

1/(1+BQ) Discharge Representation

A 72	0.0154	0.0156	0.0128	0.0064	0.0015	0.0008	0.0016
M34	0.3572	0.3612	0.3123	0.1767	0.0449	0.0260	0.0489
CC48	0.0689	0.0694	0.0629	0.0435	0.0109	0.0063	0.0119
A68	0.9754	0.9758	0.9698	0.9380	0.7527	0.6311	0.7694

Date variables

sin	0.1552	0.6358	0.9276	0.9887	0.7862	0.3629	-0.1441
cos	0.9879	0.7719	0.3737	-0.1496	-0.6180	-0.9318	-0.9896
sin1	0.3066	0.9815	0.6932	-0.2959	-0.9717	-0.6763	0.2852
cos1	0.9518	0.1916	-0.7207	-0.9552	-0.2361	0.7366	0.9585
Consent	1	1	1	1	1	1	1

A72	Intercept	1	1	1	1	1	1
	BQ	0.0154	0.0156	0.0128	0.0064	0.0015	0.0008
	sin	0.1552	0.6358	0.9276	0.9887	0.7862	0.3629
	cos	0.9879	0.7719	0.3737	-0.1496	-0.6180	-0.9318
	sin1	0.3066	0.9815	0.6932	-0.2959	-0.9717	-0.6763
	cos1	0.9518	0.1916	-0.7207	-0.9552	-0.2361	0.7366
	Consent						

A72 Concentration **2916** **3055** **2672** **1683** **839** **580** **537**

M34	Intercept	1	1	1	1	1	1
	BQ	0.3572	0.3612	0.3123	0.1767	0.0449	0.0260
	sin	0.1552	0.6358	0.9276	0.9887	0.7862	0.3629
	cos	0.9879	0.7719	0.3737	-0.1496	-0.6180	-0.9318
	sin1	0.3066	0.9815	0.6932	-0.2959	-0.9717	-0.6763
	cos1	0.9518	0.1916	-0.7207	-0.9552	-0.2361	0.7366
	Consent	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

M34 Concentration **4331** **4376** **3824** **2293** **806** **593** **852**

CC 48	Intercept	1	1	1	1	1	1	1
	BQ	0.0689	0.0694	0.0629	0.0435	0.0109	0.0063	0.0119
	sin	0.1552	0.6358	0.9276	0.9887	0.7862	0.3629	-0.1441
	cos	0.9879	0.7719	0.3737	-0.1496	-0.6180	-0.9318	-0.9896
	sin1	0.3066	0.9815	0.6932	-0.2959	-0.9717	-0.6763	0.2852
	cos1	0.9518	0.1916	-0.7207	-0.9552	-0.2361	0.7366	0.9585
	Consent	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
CC 48 Concentratrion		6027	6101	5696	4528	2655	2164	2262

A68	Intercept	1	1	1	1	1	1	1
	BQ	0.9754	0.9758	0.9698	0.9380	0.7527	0.6311	0.7694
	sin	0.1552	0.6358	0.9276	0.9887	0.7862	0.3629	-0.1441
	cos	0.9879	0.7719	0.3737	-0.1496	-0.6180	-0.9318	-0.9896
	sin1	0.3066	0.9815	0.6932	-0.2959	-0.9717	-0.6763	0.2852
	cos1	0.9518	0.1916	-0.7207	-0.9552	-0.2361	0.7366	0.9585
	Consent							

A68 Concentration	166	204	228	232	213	176	136
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Concentratio	0	0	0	0	0	0	0
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Load in pounds per day

Sum	988	992	1064	1341	2834	3898	2354
A72	1008	1039	1111	1409	3090	3745	1810
% Difference	-0.02	-0.05	-0.04	-0.05	-0.08	0.04	0.30
RPD	-0.02	-0.05	-0.04	-0.05	-0.09	0.04	0.26

Recoverable Aluminum Coefficients

BQ sin cos

44614.59702 285.00575 151.57158

1284.63217

49268.69456 298.24193 438.56568

11.83749 81.56609 1.12097

A	S	O	N	D
1	1	1	1	1
268	187	142	92	70
103	71	53	33	25
37	26	20	16	14
122	82	60	38	28
6	8	9	4	3

0.0037	0.0053	0.0070	0.0108	0.0141
0.1085	0.1500	0.1904	0.2727	0.3350
0.0265	0.0368	0.0470	0.0572	0.0660
0.8910	0.9242	0.9438	0.9635	0.9728

-0.6271	-0.9360	-0.9878	-0.7716	-0.3573
-0.7789	-0.3521	0.1556	0.6361	0.9340
0.9769	0.6591	-0.3074	-0.9816	-0.6674
0.2135	-0.7521	-0.9516	-0.1908	0.7447

1	1	1	1	1
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1	1	1	1	1
0.0037	0.0053	0.0070	0.0108	0.0141
-0.6271	-0.9360	-0.9878	-0.7716	-0.3573
-0.7789	-0.3521	0.1556	0.6361	0.9340
0.9769	0.6591	-0.3074	-0.9816	-0.6674
0.2135	-0.7521	-0.9516	-0.1908	0.7447

738 946 1250 1928 2573

1	1	1	1	1
0.1085	0.1500	0.1904	0.2727	0.3350
-0.6271	-0.9360	-0.9878	-0.7716	-0.3573
-0.7789	-0.3521	0.1556	0.6361	0.9340
0.9769	0.6591	-0.3074	-0.9816	-0.6674
0.2135	-0.7521	-0.9516	-0.1908	0.7447
1.0000	1.0000	1.0000	1.0000	1.0000
1523	1992	2449	3377	4080

1	1	1	1	1
0.0265	0.0368	0.0470	0.0572	0.0660
-0.6271	-0.9360	-0.9878	-0.7716	-0.3573
-0.7789	-0.3521	0.1556	0.6361	0.9340
0.9769	0.6591	-0.3074	-0.9816	-0.6674
0.2135	-0.7521	-0.9516	-0.1908	0.7447
1.0000	1.0000	1.0000	1.0000	1.0000
2932	3536	4244	5023	5709

1	1	1	1	1
0.8910	0.9242	0.9438	0.9635	0.9728
-0.6271	-0.9360	-0.9878	-0.7716	-0.3573
-0.7789	-0.3521	0.1556	0.6361	0.9340
0.9769	0.6591	-0.3074	-0.9816	-0.6674
0.2135	-0.7521	-0.9516	-0.1908	0.7447

99 **74** **71** **89** **124**

0 0 0 0 0

1492	1294	1190	1073	1002
1068	955	959	958	973
0.40	0.35	0.24	0.12	0.03
0.33	0.30	0.22	0.11	0.03

A72

Chronic TVS at A72			Predicction Equation Coefficients		
a2	b2		Hardness		
Cd	-3.49	0.7852	B	0.006	
Cu	-1.485	0.8545	Intercept	82.304	
Mn	4.785	0.5434	BQ	200.676	
Zn	0.7614	0.8473	sin	16.936	
			cos	48.860	
			sin1	15.385	
			cos1	-5.633	

Month	J	F	M	A	M	J	J
Q	64	63	77	155	682	1196	624
Hardness	277	290	268	196	91	53	72
Al ch	87	87	87	87	87	87	87
Cd ch	2.5	2.6	2.5	1.9	1.1	0.7	0.9
Cu ch	14	14	13	10	5	3	4
Mn ch	2544	2607	2497	2107	1388	1032	1227
Zn ch	251	261	244	187	98	62	81

M 34

Prediction equation coefficients

Hardness Aluminum Cadmium Copper Iron Zinc

B	0.013	1.00	0.021	0.123	0.06521	0.021
Intercept	60.05228	15.10361	0.91724	14.65129	77.70523	05.25873
BQ	205.02801	38.29032	0.60966	00.98354	70.29706	78.11589
sin	9.24827	69.03843	0.26911	14.16661	-89.38888	88.77920
cos	32.30173	79.08681	0.20991	10.17487	38.04002	85.94018
sin1		435.43127	-0.12214	1.04278	86.24646	-17.99615
cos1		123.10453	-0.14689	-3.82920	-12.30367	-45.60154
consent		-265.10754		-10.75402	35.80515	-98.00378

MONTH	J	F	M	A	M	J	J
Avg monthly	Q	22	22	28	58	266	468
	Hardness	255	241	226	170	86	60
Chronic Stan	Al, ch	87	87	87	87	87	87
	Cd, ch	2.4	2.3	2.1	1.7	1.0	0.8
	Cu ch	26	25	23	18	10	7

Mn	2430	2359	2275	1951	1351	1105	1257
Zn ch	234	224	211	166	94	68	84

A68 Animas at Silverton

Prediction equation coefficients

Hardness Cadmium Copper Manganese Zinc

B	0.011	na	na	0.010	0.016
Intercept	37.945	2.395	5.783	258.473	304.617
BQ	165.600			1371.923	644.136
sin		1.712	2.049	611.024	315.451
cos		0.140	0.729	81.662	-18.603
sin1		-0.250	-1.520	16.031	-33.783
cos1		-1.185	-0.472	-263.628	-140.108
May		-1.936	2.261	-258.699	
consent		-0.714	-1.828	411.428	-67.174

Animas R	Month	J	F	M	A	M	J	J
		Q	25	25	31	66	329	585
	Hardness	168	168	161	134	74	60	76
	Cd,tvs	1.7	1.7	1.7	1.4	0.9	0.8	0.9
	Cu tvs	18	18	17	15	9	8	9
	Mn tvs	1935	1938	1895	1713	1240	1110	1264
onic stand	AI	87	87	87	87	87	87	87

ction Equation Coefficients

A	S	O	N	D
268	187	142	92	70
124	158	182	215	248
87	87	87	87	87
1.3	1.6	1.8	2.1	2.3
7	9	10	11	13
1643	1872	2022	2217	2396
127	156	176	203	229

Acute TVS at M34 Chronic TVS at M34

a2 b2 a3 b3

Cd	-3.828	1.128	-3.49	0.7852
Cu	-0.7703	0.9422	-1.485	0.8545
Mn	4.4995	0.7893	4.785	0.5434
Zn	0.8904	0.8473	0.7614	0.8473

A	S	O	N	D
103	71	53	33	25
126	151	192	217	253
87	87	87	87	87
1.4	1.6	1.9	2.1	2.3
14	16	20	22	26

1659	1829	2085	2229	2418
129	150	184	205	232

Chronic TVS at A68

a2 b2

Cd	-3.49	0.7852
Cu	-1.485	0.8545
Mn	4.785	0.5434
Zn	0.7614	0.8473

A	S	O	N	D
122	82	60	38	28
109	125	138	155	165
1.2	1.4	1.5	1.6	1.7
12	14	15	17	18
1528	1650	1741	1854	1916
87	87	87	87	87